

1003910-010302

What is claimed is:

1. A method of manufacturing an outer race used in a constant velocity universal joint of a tripod type, said constant velocity universal joint comprising a cup body and a shaft extending axially outwardly from a bottom of the cup body in a direction opposite to an open end thereof, said cup body having an inner peripheral surface formed with three axially extending track grooves, said cup body further including a radially outwardly protruding wall portion, aligned with each of the track grooves, and a radially inwardly depressed wall portion aligned with a reduced diameter portion of the peripheral wall of the cup body between the neighboring track grooves, said protruding and depressed wall portions being so defined as to alternate with each other in a direction substantially circumferentially of the cup body, each of the reduced diameter portion of the peripheral wall of the cup body adjacent the open end of the latter having a chamfered portion defined at a peripheral lip region of the open end of the cup body,

said method comprising an upsetting step in which a reduced diameter portion which eventually defines the shaft, a large diameter portion which eventually defines the cup body, and respective shapes which eventually define the associated chamfered portions are formed by means of an upsetting technique.

2. A method of manufacturing an outer race used in a constant velocity universal joint of a tripod type, said constant velocity universal joint comprising a cup body and a shaft extending axially outwardly from a bottom of the cup body in a direction opposite to an open end thereof, said cup body having an inner peripheral surface formed with three axially extending track grooves, said cup body further including a radially outwardly protruding wall portion, aligned with each of the track grooves, and a radially inwardly depressed wall portion aligned with a reduced diameter portion of the peripheral wall of the cup body between the neighboring track grooves, said protruding and depressed wall

portions being so defined as to alternate with each other in a direction substantially circumferentially of the cup body, each of the reduced diameter portion of the peripheral wall of the cup body adjacent the open end of the latter having a chamfered portion defined at a peripheral lip region of the open end of the cup body,

said method comprising:

an upsetting step for making a generally elongated intermediate member having a small diameter portion and a large diameter portion with an axially inwardly depressed recess defined in an end face of the large diameter portion remote from the small diameter portion, said recesses having a tapered peripheral wall face which eventually define a general shape of each of the chamfered portions;

a cup forming step for shaping the elongated intermediate members to a shape having the cup body by means of a combined pushing method including a forward pushing and a rearward container pushing; and

a drawing step for shaping the cup body to a final design dimension and shape by means of a drawing technique.

3. The outer race manufacturing method as claimed in Claim 2, wherein the cup forming step is performed by the combined pushing method using a die for forming the shaft and the cup body, and a straight punch for forming the track grooves and the reduced diameter portion between the neighboring track grooves.

4. The outer race manufacturing method as claimed in Claim 2, wherein the drawing step is carried out by using a die for forming the cup body, and a punch for forming the track grooves, the reduced diameter portion between the neighboring track grooves, and the chamfered portion at one end of each of the reduced diameter portions adjacent the open end of the cup body.

5. The outer race manufacturing method as claimed in Claim 3, wherein the drawing step is carried out by using a die for forming the cup body, and a punch for forming the track grooves, the reduced diameter portion between the

neighboring track grooves, and the chamfered portion at one end of each of the reduced diameter portions adjacent the open end of the cup body.

6. The outer race manufacturing method as claimed in Claim 2, further comprising an axial pushing step, performed prior to the upsetting step, for axially pushing a cylindrical rod member to form a small diameter portion, a large diameter portion and an intermediate portion connecting the small and large diameter portions together and flaring outwardly in a direction from the small diameter portion towards the large diameter portion.

Claim 11

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